

PROJECT NOTE

TO: Project File

SUBJECT: Jard Company, Inc.

TASK DESCRIPTION: Identification of and Rationale for Choosing Background Samples for Comparison of Selected Solid Matrix (Soil and Sediment) Samples.

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This project note explains the rationale for the selection of background solid matrix samples for comparison to contaminated solid matrix samples in both the contaminated soil source (Source No. 1) and surface water pathway for the Jard Company, Inc. (Jard) Hazard Ranking System (HRS). The justification for sample similarity is presented for each solid matrix explaining the applicability of the samples presented.

Background Soil and Soil/Source Samples

This section explains the rationale for the selection of the Background Soil Samples used for the comparison to Contaminated Soil/Source samples for the Jard HRS Surface Water Pathway, via the ground water to surface water component.

Both background and contaminated soil/source samples to be examined and compared in this project note were collected in April 2013 as part of the Environmental Protection Agency (EPA) Site Reassessment (SR) of the Jard Company, Inc. property, conducted by Weston Superfund Technical Assessment and Response Team (START) for US EPA Region 1.

Ten background soil samples (SS-01A, SS-01B, SS-03A, SS-04A, SS-07B, SS-07C, SS-08A, SS-09C, SS-10B, and SS-15A) were collected by START and analyzed through a fixed based EPA Contract Laboratory Program (CLP) laboratory for polychlorinated biphenyl (PCB) Aroclor analyses (Tables 1 and 2). Based on a review of the 19 potential contaminated samples selected for fixed laboratory PCB Aroclor analyses including their analytical results, their spatial locations, their quality of documentation, and their ability to meet an observed release criteria, the following eight contaminated samples are presented in the HRS Documentation Record: SB-01C, SB-03B, SB-05B, SB-06B, SB-08D, SB-09D, SO-24A, SO-25B, SO-28A, SO-29A, SO-30B, SO-31A, SO-31B, SO-52A, SO-53A, SO-61A, SO-85C, SO-91A, SO-92A (Tables 3 and 4) These 19 samples are examined to determine similarity with and appropriateness of the background samples selection for analyses.

In order to identify and choose an appropriate background samples for comparison to the selected contaminated soil/source samples the similarity of several items must be considered, including: the time period of sample collection; the sample collection methods; the sample environments; the sample matrix materials; the sample collection depths; and the sample analytical methods.

The narrative below outlines each of these considerations and where necessary, the rationale for the selection of the appropriate background samples

Time Period of Sample Collection: All Jard SR soil/source samples (Contaminated and Background) were collected between 12 April and 18 April 2013.

Sample Collection Methods: All Jard SR soil/source samples (Contaminated and Background) were collected using similar techniques and equipment (stainless steel hand augers and/or scoops) in accordance with the Site-Specific Quality Assurance Project Plan (SS-QAPP). In addition, soil/source boring samples (SB-XX) were collected using the Geoprobe® unit and stainless steel Geoprobe Macrocore core with a 2-inch-diameter acetate sleeve insert in accordance with the SS-QAPP. It is noted that no background samples were collected using the Geoprobe sampling method, however, the collection method for background used is considered similar and the slight variation in methods have no overall effect on sample analytical results.

Sample Collection Depths: All Jard SR soil/source samples (Contaminated and Background) were collected at similar depths, ranging between 0 and 24 inches below ground surface. The contaminated samples were generally collected between 0 and 30 inches; while background samples ranged from between 0 and 24 inches below ground surface. In addition, soil/source boring samples (SB-XX) were collected at depths between 3.3 and 12 feet. It is noted that no background samples were collected at depths greater than 30 inches while soil/sources boring samples were collected to maximum depth of 12 feet; however, since the materials being evaluated are source materials and not likely representative of original natural native materials depths, coupled with the depth of the materials on the site has been likely been altered during site activities (i.e. building construction, etc.) and removal actions (earthen cap install, etc.) the variation in depths of soil/source borings samples verses background used is considered to have methods have no overall effect on sample analytical results.

Sample Analytical Methods: All Jard SR soil/source samples (Contaminated and Background) samples were submitted to a CLP laboratory (Chemtech Consulting Group) for low/medium analysis of Aroclor compounds following Statement of Work (SOW) SOM1.2, and the data were validated at the Tier II level by personnel not involved with the source sampling event and according to Region I EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses and the USEPA CLP National Functional Guidelines for Superfund Organic Method.

Sample Handling Procedures: All Jard SR soil/source samples (Contaminated and Background) samples were handled in a similar manner including sample collection, storage, handling and shipping activities, in accordance with the Site-Specific QAPP.

Sample Environments: Jard SR soil/source samples (Contaminated and Background) samples were generally collected from a similar environmental setting. All soil/source samples (Contaminated and Background) were collected from within 0.5 miles of each other and generally overlay similar overburden deposits within the Bennington, Vermont (VT).

Sample Matrix Materials: As presented in Tables 2 and 4, the Contaminated and Background soil/source samples collected as part of the Jard SR contained varying compositions of naturally occurring native matrix materials (i.e., sand, silt, clay, gravel, and organic matter). The matrix material for both the Contaminated and Background soil/source samples were described on field data sheets by START Geologist Kelly following sample collection. Due to the varying composition of matrix materials in the Contaminated and Background soil/source samples, START Geologist Kelly compared the materials and selected which potential background soil/source sample most closely resembled each of the contaminated soil/source samples. START Geologist Kelly noted that the matrix material composition in the contaminated soil/source samples were similar to those observed in the background soil/source sample evaluated.

Although exact matrix composition matches were not observed, based on the comparison of the matrix material composition in each of the ten background samples with those exhibited in the 19 contaminated samples, START Geologist Kelly determined which background sample was best suited for comparison

for each of the contaminated soil/source samples (Table 5). START Geologist Kelly, noted that matrix material in the following five background soil samples (SS-03A, SS-04A, SS-07B, SS-09C, and SS-10B) most closely resemble and are best suited for matrix material comparison to the eight contaminated samples collected by START and analyzed through a fixed based CLP laboratory for PCB Aroclor analyses (Tables 2, 4 and 5).

Based on the slight variations in sample similarity (resulting from sample collection methods, sample depth, and matrix materials) noted in the above evaluation of the Contaminated and Background soil/source samples collected as part of the Jard EPA SR conducted by Weston START for US EPA Region 1, START Geologist Kelly determined that in order to minimize introduction of any subjective basis in the selection of background samples, all ten of the Background soil samples are appropriate for use to evaluate the contaminated soil/source samples in the Jard HRS documentation record.

Background Sediment and Contaminated Sediment Samples

This section explains the rationale for the selection of the Background Sediment Samples used for the comparison to Contaminated Sediment samples for the Jard Company, Inc. HRS Surface Water Pathway, via the ground water to surface water component.

Both potential background and contaminated sediment samples to be examined and compared in this project note were collected on 16 April 2013 as part of the Jard SR conducted by Weston START for EPA Region 1.

Seven potential background sediment samples (SD-50A, SD-51A, SD-51C, SD-52C, SD-53A, SD-53B, and SD-54C) were collected by START and analyzed through a fixed based EPA CLP laboratory for PCB Aroclor analyses (Tables 6 and 7). Based on a review of the 18 potential contaminated samples selected for fixed laboratory PCB Aroclor analyses including their analytical results, their special locations, their quality of documentation, and their ability to meet an observed release criteria, the following eight contaminated samples, presented in the HRS Documentation Record: SD-31A, SD-32A, SD-36A, SD-39A, SD-41A, SD-46A, SD-47A, and SD-49A (Tables 8 and 9) These eight samples are examined to determine similarity with and appropriateness of the background samples selected for analyses.

In order to identify and choose an appropriate background samples for comparison to the selected contaminated sediment samples the similarity of several items must be considered, including: the time period of sample collection; the sample collection methods; the sample environments; the sample matrix materials; the sample collection depths; and the sample analytical methods.

The narrative below outlines each of these considerations and where necessary, the rationale for the selection of the appropriate background samples

Time Period of Sample Collection: All Jard SR sediment samples (Contaminated and Potential Background) were collected on the same day, 16 April 2013.

Sample Collection Methods: All Jard SR sediment samples (Contaminated and Potential Background) were collected using similar techniques and equipment (stainless steel hand augers and/or scoops) in accordance with the SS-QAPP.

Sample Collection Depths: All Jard SR sediment samples (Contaminated and Potential Background) were collected at similar depths, ranging between 0 and 24 inches below the sediment/water interface. The contaminated samples were generally collected between 0 and 12 inches; while background samples were collected from 0 and 6 or 12 and 24 inch depths below the sediment/water interface.

Sample Analytical Methods: All Jard SR sediment samples (Contaminated and Potential Background) samples were submitted to a CLP laboratory (Chemtech Consulting Group) for low/medium analysis of

Aroclor compounds following SOW SOM1.2, and the data were validated at the Tier II level by personnel not involved with the source sampling event and according to Region I EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses and the USEPA CLP National Functional Guidelines for Superfund Organic Method.

Sample Handling Procedures: All Jard SR sediment samples (Contaminated and Potential Background) samples were handled in a similar manner including sample collection, storage, handling and shipping activities, in accordance with the SSQAPP.

Sample Environments: All Jard SR sediment samples (Contaminated and Potential Background) samples were collected from similar environments. Both Contaminated and Potential Background samples were collected from either HRS wetland areas or small tributary stream channels of Furnace Brook. All sediment samples (Contaminated and Potential Background) are located within 0.5 miles of each other and overlay similar overburden deposits within the Bennington, VT.

Sample Matrix Materials: As presented in Tables 7 and 9, the Contaminated and Potential Background sediment samples collected as part of the Jard SR contained varying compositions of naturally occurring native matrix materials (*i.e.*, sand, silt, clay, gravel, and organic matter). The matrix material for both the Contaminated and the Potential Background sediment samples were described on field data sheets by START Geologist Kelly following sample collection. Due to the varying composition of matrix materials in the Contaminated and Potential Background sediment samples, START Geologist Kelly compared the materials and selected which potential background sediment sample most closely resembled each of the contaminated sediment samples. START Geologist Kelly noted that the matrix material composition in the contaminated sediment samples were similar to those observed in the background sediment sample evaluated.

Although exact matrix composition matches were not observed, based on the comparison of the matrix material composition in each of the seven potential background samples with those exhibited in the eight contaminated samples, START Geologist Kelly determined which background sample was best suited for comparison for each of the contaminated sediment samples (Table 10). START Geologist Kelly, noted that matrix material in the following five background sediment samples (SD-51A, SD-51C, SD-52C, SD-53A, and SD-54C) most closely resemble and are best suited for matrix material comparison to the eight contaminated samples collected by START and analyzed through a fixed based CLP laboratory for PCB Aroclor analyses (Tables 7, 9 and 10).

Due to the samples similarity noted during the above comparison evaluation of the Contaminated and Background sediment samples collected as part of the Jard (SR) and eight contaminated sediment samples (SD-31A, SD-32A, SD-36A, SD-39A, SD-41A, SD-46A, SD-47A, and SD-49A), START Geologist Kelly identified and determined the following five background samples (SD-51A, SD-51C, SD-52C, SD-53A, and SD-54C) are appropriate for comparison to the eight contaminated sediment samples selected for the Jard HRS documentation record.

Table 1 – Soil/Source Background Sample Description					
Sample ID	Sample Medium	Sample Location	Depth (Feet)	Date Collected	HRS Doc Rec References
P020-SS-01A (A4B95)	Soil	Property P020	0.0 - 0.5	4/12/13	19, p. 292
P020-SS-01B (A4B97)	Soil	Property P020	0.5 – 1.0	4/12/13	19, p. 293
P020-SS-03A (A4B91)	Soil	Property P020	0.0 - 0.5	4/15/13	19, p. 297
P020-SS-04A (A4B90)	Soil	Property P020	0.0 - 0.5	4/15/13	19, p. 299
P020-SS-07B (A4B92)	Soil	Property P020	0.5 – 1.0	4/15/13	19, p. 307
P020-SS-07C (A4B93)	Soil	Property P020	1.0 – 2.0	4/15/13	19, p. 308
P020-SS-08A (A4B94)	Soil	Property P020	0.0 - 0.5	4/12/13	19, p. 309
P020-SS-09C (A4B98)	Soil	Property P020	1.0 – 1.7	4/15/13	19, p. 314
P020-SS-10B (A4B96)	Soil	Property P020	0.5 – 1.0	4/15/13	19, p. 316
P020-SS-15A (A4C37)	Soil	Property P020	0.0 – 1.0	4/18/13	19, p. 322

* Depth below ground surface.

Table 2 – Soil/Source Background Sample Matrix Description

Sample ID	Sample Description	HRS Doc Rec References
P020-SS-01A (A4B95)	Moist, dark brown, SILT, some organics, trace fine to coarse sand, trace fine gravel, trace clay.	19, p. 292
P020-SS-01B (A4B97)	Dark brown, SILT, little clay, trace fine to coarse sand, trace fine gravel, trace organics.	19, p. 293
P020-SS-03A (A4B91)	Brown, SILT and fine to coarse SAND, trace fine to medium gravel, trace organics, trace clay.	19, p. 297
P020-SS-04A (A4B90)	Brown to dark brown, SILT, some fine to coarse sand, little fine to medium gravel, trace organics.	19, p. 299
P020-SS-07B (A4B92)	Brown to dark brown, fine to medium SAND and SILT, little clay, trace organics, trace coarse sand.	19, p. 307
P020-SS-07C (A4B93)	Wet, brown to dark brown, SILT, some clay, little fine sand, trace medium to coarse sand, trace organics, trace fine to medium gravel.	19, p. 308
P020-SS-08A (A4B94)	Brown, SILT and CLAY, little organics, trace fine to medium sand, trace fine gravel.	19, p. 309
P020-SS-09C (A4B98)	Brown, fine to medium GRAVEL and fine to medium SAND, little silt, trace clay, trace organics.	19, p. 314
P020-SS-10B (A4B96)	Brown to yellow brown, SILT and fine SAND, little clay, trace medium to coarse sand, trace fine gravel, trace organics.	19, p. 316
P020-SS-15A (A4C37)	Brown, CLAY and fine to medium SAND, some silt, trace coarse sand, trace fine to medium gravel, trace organics.	19, p. 322

Table 3 – Source No. 1 Soil/Source Sample Description					
Sample ID	Sample Medium	Sample Location	Depth (Feet)*	Date Collected	HRS Doc Rec References
SB-01C (A4B17)	Soil/Source Boring	Property P100	10.4 – 12.0	4/1/13	10, pp. 133, 164
SB-03B (A4B18)	Soil/Source Boring	Property P100	4.8 – 6.5	4/1/13	10, pp. 135, 164
SB-05B (A4B19)	Soil/Source Boring	Property P100	5.3 – 5.6	4/8/13	10, pp. 137, 165
SB-06B (A4B20)	Soil/Source Boring	Property P100	3.3 – 4.0	4/13/13	10, pp. 138, 165
SB-08D (A4B21)	Soil/Source Boring	Property P100	10.4 – 11.0	4/8/13	10, pp. 140, 166
SB-09D (A4B22)	Soil/Source Boring	Property P100	7.4 – 8.0	4/8/13	10, pp. 141, 166
SO-24A (A4B45)	Soil/Source	Property P100	0.0 - 0.7	4/4/13	15, p. 28
SO-25B (A4B46)	Soil/Source	Property P100	1.0 - 2.5	4/4/13	15, p. 32
SO-28A (A4B47)	Soil/Source	Property P100	0.0 - 0.7	4/4/13	15, p. 41
SO-29A (A4B48)	Soil/Source	Property P100	0.0 – 1.0	4/4/13	15, p. 42
SO-30B (A4B51)	Soil/Source	Property P100	1.0 - 2.0	4/4/13	15, p. 44
SO-31A (A4B49)	Soil/Source	Property P100	0.0 – 1.0	4/4/13	15, p. 45
SO-31B (A4B50)	Soil/Source	Property P100	1.0 – 2.0	4/4/13	15, p. 46
SO-52A (A4B41)	Soil/Source	Property P100	0.0 – 0.3	4/4/13	15, p. 73
SO-53A (A4B42)	Soil/Source	Property P100	0.0 – 1.0	4/4/13	15, p. 74
SO-61A (A4B40)	Soil/Source	Property P100	0.0 – 1.0	4/4/13	15, p. 82
SO-85C (A4B44)	Soil/Source	Property P100	2.0 – 2.5	4/8/13	15, p. 116
SO-91A (A4B43)	Soil/Source	Property P100	0.0 - 0.8	4/8/13	15, p. 125
SO-92A (A4B39)	Soil/Source	Property P100	0.0 - 0.7	4/8/13	15, p. 126

* Depth below ground surface.

Table 4 – Source No. 1 Soil/Source Sample Matrix Description

Sample ID	Sample Description	HRS Doc Rec References
SB-01C (A4B17)	Gray, fine SAND and SILT, little fine to coarse gravel. An oil staining was noted.	10, pp. 133, 164
SB-03B (A4B18)	Dark gray, fine to coarse SAND and SILT, some medium to coarse gravel (red rock fragments, possibly brick).	10, pp. 135, 164
SB-05B (A4B19)	Wet, brown to dark brown, fine SAND and SILT, trace medium to coarse sand, trace fine gravel.	10, pp. 137, 165
SB-06B (A4B20)	Dark brown, fine SAND and SILT, trace clay, trace fine to medium gravel, trace medium to coarse sand.	10, pp. 138, 165
SB-08D (A4B21)	Olive to gray, fine to medium GRAVEL and fine to coarse SAND, some silt, trace clay. A petroleum odor and visible sheen were noted.	10, pp. 140, 166
SB-09D (A4B22)	Wet, gray, fine to coarse SAND, some fine to coarse gravel, trace silt.	10, pp. 141, 166
SO-24A (A4B45)	Well-sorted, brown, fine SAND, little silt, trace organics, trace gravel.	15, p. 28
SO-25B (A4B46)	Brown, SILT, little fine to medium sand, trace clay, trace organics, trace coarse sand.	15, p. 32
SO-28A (A4B47)	Brown, fine to coarse SAND, little silt, trace fine gravel, trace organics.	15, p. 41
SO-29A (A4B48)	Brown, fine to coarse SAND and SILT, little fine gravel, trace organics, trace clay.	15, p. 42
SO-30B (A4B51)	Brown to dark gray, SILT and fine SAND, trace medium to coarse sand, trace fine to medium gravel, trace organics, trace clay.	15, p. 44
SO-31A (A4B49)	Brown, fine SAND and SILT, trace medium to coarse sand, trace fine to medium gravel, trace organics, trace clay.	15, p. 45
SO-31B (A4B50)	Brown, SILT and fine SAND, little fine to medium gravel, trace medium to coarse sand, trace organics, trace clay.	15, p. 46
SO-52A (A4B41)	Wet, dark brown, CLAY and SILT, little fine to coarse sand, trace fine gravel, trace organics.	15, p. 73
SO-53A (A4B42)	Brown, SILT and fine to coarse SAND, little fine to medium gravel, trace organics, trace clay.	15, p. 74
SO-61A (A4B40)	Brown, SILT, some fine to coarse sand, trace fine gravel, trace organics, trace clay.	15, p. 82
SO-85C (A4B44)	Brown, SILT and fine to coarse SAND, little fine to medium gravel, trace organics, trace clay.	15, p. 116
SO-91A (A4B43)	Brown SILT, some fine to coarse sand, trace fine gravel, trace organics, trace clay.	15, p. 125
SO-92A (A4B39)	Dark brown, SILT, little fine to coarse sand, little organics, trace clay, trace fine to medium gravel.	15, p. 126

**Table 5 – Most Similar Soil/Source Sediment Matrix Composition for Source 1
Contaminated/Background Samples.**

Sample ID	Sample Description	HRS Doc Rec References
SB-01C (A4B17)	Gray, fine SAND and SILT, little fine to coarse gravel. An oil staining was noted.	10, pp. 133, 164
P020-SS-03A (A4B91)	Brown, SILT and fine to coarse SAND, trace fine to medium gravel, trace organics, trace clay.	19, p. 297
SB-03B (A4B18)	Dark gray, fine to coarse SAND and SILT, some medium to coarse gravel (red rock fragments, possibly brick).	10, pp. 135, 164
P020-SS-03A (A4B91)	Brown, SILT and fine to coarse SAND, trace fine to medium gravel, trace organics, trace clay.	19, p. 297
SB-05B (A4B19)	Wet, brown to dark brown, fine SAND and SILT, trace medium to coarse sand, trace fine gravel.	10, pp. 137, 165
P020-SS-03A (A4B91)	Brown, SILT and fine to coarse SAND, trace fine to medium gravel, trace organics, trace clay.	19, p. 297
SB-06B (A4B20)	Dark brown, fine SAND and SILT, trace clay, trace fine to medium gravel, trace medium to coarse sand.	10, pp. 138, 165
P020-SS-07B (A4B92)	Brown to dark brown, fine to medium SAND and SILT, little clay, trace organics, trace coarse sand.	19, p. 307
SB-08D (A4B21)	Olive to gray, fine to medium GRAVEL and fine to coarse SAND, some silt, trace clay. A petroleum odor and visible sheen were noted.	10, pp. 140, 166
P020-SS-09C (A4B98)	Brown, fine to medium GRAVEL and fine to medium SAND, little silt, trace clay, trace organics.	19, p. 314
SB-09D (A4B22)	Wet, gray, fine to coarse SAND, some fine to coarse gravel, trace silt.	10, pp. 141, 166
P020-SS-09C (A4B98)	Brown, fine to medium GRAVEL and fine to medium SAND, little silt, trace clay, trace organics.	19, p. 314
SO-24A (A4B45)	Well-sorted, brown, fine SAND, little silt, trace organics, trace gravel.	15, p. 28
P020-SS-03A (A4B91)	Brown, SILT and fine to coarse SAND, trace fine to medium gravel, trace organics, trace clay.	19, p. 297
SO-25B (A4B46)	Brown, SILT, little fine to medium sand, trace clay, trace organics, trace coarse sand.	15, p. 32
P020-SS-04A (A4B90)	Brown to dark brown, SILT, some fine to coarse sand, little fine to medium gravel, trace organics.	19, p. 299
SO-28A (A4B47)	Brown, fine to coarse SAND, little silt, trace fine gravel, trace organics.	15, p. 41
P020-SS-03A (A4B91)	Brown, SILT and fine to coarse SAND, trace fine to medium gravel, trace organics, trace clay.	19, p. 297
SO-29A (A4B48)	Brown, fine to coarse SAND and SILT, little fine gravel, trace organics, trace clay.	15, p. 42
P020-SS-03A (A4B91)	Brown, SILT and fine to coarse SAND, trace fine to medium gravel, trace organics, trace clay.	19, p. 297

Table 5 – Most Similar Soil/Source Sediment Matrix Composition for Source 1 Contaminated/Background Samples.		
Sample ID	Sample Description	HRS Doc Rec References
SO-30B (A4B51)	Brown to dark gray, SILT and fine SAND, trace medium to coarse sand, trace fine to medium gravel, trace organics, trace clay.	15, p. 44
P020-SS-10B (A4B96)	Brown to yellow brown, SILT and fine SAND, little clay, trace medium to coarse sand, trace fine gravel, trace organics.	19, p. 316
SO-31A (A4B49)	Brown, fine SAND and SILT, trace medium to coarse sand, trace fine to medium gravel, trace organics, trace clay.	15, p. 45
P020-SS-10B (A4B96)	Brown to yellow brown, SILT and fine SAND, little clay, trace medium to coarse sand, trace fine gravel, trace organics.	19, p. 316
SO-31B (A4B50)	Brown, SILT and fine SAND, little fine to medium gravel, trace medium to coarse sand, trace organics, trace clay.	15, p. 46
P020-SS-10B (A4B96)	Brown to yellow brown, SILT and fine SAND, little clay, trace medium to coarse sand, trace fine gravel, trace organics.	19, p. 316
SO-52A (A4B41)	Wet, dark brown, CLAY and SILT, little fine to coarse sand, trace fine gravel, trace organics.	15, p. 73
P020-SS-08A (A4B94)	Brown, SILT and CLAY, little organics, trace fine to medium sand, trace fine gravel.	19, p. 309
SO-53A (A4B42)	Brown, SILT and fine to coarse SAND, little fine to medium gravel, trace organics, trace clay.	15, p. 74
P020-SS-03A (A4B91)	Brown, SILT and fine to coarse SAND, trace fine to medium gravel, trace organics, trace clay.	19, p. 297
SO-61A (A4B40)	Brown, SILT, some fine to coarse sand, trace fine gravel, trace organics, trace clay.	15, p. 82
P020-SS-04A (A4B90)	Brown to dark brown, SILT, some fine to coarse sand, little fine to medium gravel, trace organics.	19, p. 299
SO-85C (A4B44)	Brown, SILT and fine to coarse SAND, little fine to medium gravel, trace organics, trace clay.	15, p. 116
P020-SS-03A (A4B91)	Brown, SILT and fine to coarse SAND, trace fine to medium gravel, trace organics, trace clay.	19, p. 297
SO-91A (A4B43)	Brown SILT, some fine to coarse sand, trace fine gravel, trace organics, trace clay.	15, p. 125
P020-SS-04A (A4B90)	Brown to dark brown, SILT, some fine to coarse sand, little fine to medium gravel, trace organics.	19, p. 299
SO-92A (A4B39)	Dark brown, SILT, little fine to coarse sand, little organics, trace clay, trace fine to medium gravel.	15, p. 126
P020-SS-04A (A4B90)	Brown to dark brown, SILT, some fine to coarse sand, little fine to medium gravel, trace organics.	19, p. 299

Note: Based on the comparison of the soil/source matrix material composition for the background and contaminated soil/source samples, the background sample best suited for comparison was assigned and described in the shaded row beneath the appropriate contaminated soil/source sample (non-shaded rows).

Table 6 – Potential Background Sediment Sample Location Descriptions					
Sample ID	Sample Medium	Sample Location	Depth* (inches)	Date Collected	HRS Doc Rec References
SD-50A (A4C23)	Wetland Sediment	Sediment located north of the Jard property, east of Bowen Road	0-6	4/16/2013	4, pp. 55, 64, 18, p. 49
SD-51A (A4C22)	Wetland Sediment	Sediment located north of the Jard property, east of Bowen Road	0-6	4/16/2013	4, pp. 55, 64, 18, p. 52
SD-51C (A4C24)	Wetland Sediment	Sediment located north of the Jard property, east of Bowen Road	12-24	4/16/2013	4, pp.55, 64; 18, p. 54
SD-52C (A4C27)	Wetland Sediment	Sediment located north of the Jard property, east of Bowen Road	12-24	4/16/2013	4, pp. 55, 64; 18, p. 57
SD-53A (A4C29)	Wetland Sediment	Sediment located north of the Jard property, east of Bowen Road	0-6	4/16/2013	4, pp. 55, 64; 18, p. 58
SD-53B (A4C25)	Wetland Sediment	Sediment located north of the Jard property, east of Bowen Road	6-12	4/16/2013	4, pp. 55, 64; 18, p. 60
SD-54C (A4C26)	Wetland Sediment	Sediment located north of the Jard property, east of Bowen Road	12-24	4/16/2013	4, pp. 56, 64; 18, p. 63

* Depth below water/sediment interface

Table 7 – Potential Background Sediment Sample Matrix Description		
Sample ID	Sample Description	HRS Doc Rec Reference
SD-50A (A4C23)	Saturated dark brown, ORGANICS and SILT.	18, p. 49
SD-51A (A4C22)	Saturated dark brown-to-black, ORGANICS and SILT, little clay, trace fine to coarse sand	18, p. 52
SD-51C (A4C24)	Saturated, dark brown, SILT, some clay, trace organics, trace fine to coarse sand, trace fine to medium gravel.	18, p. 54
SD-52C (A4C27)	Saturated, brown, fine-to-medium SAND and fine-to-medium GRAVEL, little coarse sand, little silt, trace clay, trace organics.	18, p. 57
SD-53A (A4C29)	Wet, dark brown, SILT, little clay, little organics, trace fine to coarse sand.	18, p. 58
SD-53B (A4C25)	Moist, dark brown, SILT and CLAY, trace fine to coarse sand, trace organics.	18, p. 60
SD-54C (A4C26)	Moist, brown to dark brown, fine to medium SAND and SILT, some clay, trace coarse sand, trace organics.	18, p. 63

Table 8 – Contaminated Sediment Sample Location Descriptions

Sample ID	Sample Medium	Sample Location	Distance from PPE (feet)	Depth* (inches)	Date Collected	HRS Doc Rec References
SD-49A (A4C01)	Wetland Sediment	Sediment located along “Unnamed Stream” in north-western portion of property P030, west of Park Street and property P002.	1560	0 to 12	4/16/2013	4, pp. 56, 64; 18, p. 48; 102, p.3
SD-47A (A4C09)	Wetland Sediment	Sediment located along “Unnamed Stream” in north-central portion of property P030, west of Park Street and property P002.	1390	0 to 12	4/16/2013	4, pp. 56, 64; 18, p. 44; 102, p.3
SD-46A (A4C10)	Wetland Sediment	Sediment located along “Unnamed Stream” in north-central portion of property P030, west of Park Street and property P002.	1275	0 to 12	4/16/2013	4, pp. 56, 64; 18, p. 43; 102, p.3
SD-41A (A4C04)	Wetland Sediment	Sediment located along “Unnamed Stream” in east-central portion of property P030, west of Park Street and property P041.	937	0 to 12	4/16/2013	4, pp. 56, 64; 18, p. 37; 102, p.3
SD-39A (A4C05)	Wetland Channel Sediment	Sediment located along “Unnamed Stream” on property P041.	715	0 to 8	4/16/2013	4, pp. 57,64; 18, p. 35; 102, p.3
SD-36A (A4C06)	Wetland Channel Sediment	Sediment located along “Unnamed Stream” on residential property P006.	596	0 to 12	4/16/2013	4, pp. 57, 63; 18, p. 31; 102, p.3
SD-32A (A4C07)	Wetland Channel Sediment	Sediment located along “Unnamed Stream” on northwestern corner of residential property P011	26	0 to 12	4/16/2013	4, pp. 58, 63; 18, p. 27; 102, p.3
SD-31A (A4C08)	Wetland Channel Sediment	Sediment / PPE sample located on northwestern corner of residential property P011 at headwaters “Unnamed Stream”	0	0 to 12	4/16/2013	4, pp. 58, 63; 18, p. 25102, p.3

* Depth below water/sediment interface

Table 9 – Contaminated Sediment Sample Matrix Description

Sample ID	Sample Description	HRS Doc Rec Reference
SD-49A (A4C01)	Wet, dark brown, SILT, some organics, trace clay, trace fine to coarse sand.	18, p. 48
SD-47A (A4C09)	Moist, dark brown, SILT, some clay, some fine to medium sand, trace coarse sand, trace fine gravel, trace organics.	18, p. 44
SD-46A (A4C10)	Moist, brown, fine to coarse SAND, some fine to medium gravel, trace silt, trace debris (plastic sheeting), trace organics, trace clay.	18, p. 43
SD-41A (A4C04)	Saturated, dark brown, fine to coarse SAND and SILT, little fine to medium gravel, trace clay, trace organics.	18, p. 37
SD-39A (A4C05)	Saturated, dark brown, SILT, little fine to medium gravel, little organic debris (pine needles, bark, and wood chips), trace clay, trace fine to coarse sand.	18, p. 35
SD-36A (A4C06)	Saturated, dark brown, SILT, some organics, trace clay, trace fine to coarse sand.	18, p. 31
SD-32A (A4C07)	Saturated, dark brown, SILT, some organics, little fine to coarse sand, trace clay, trace fine gravel.	18, p. 27
SD-31A (A4C08)	Saturated, brown, fine to medium SAND, some silt, some fine to medium gravel, trace coarse sand, trace organics, trace clay.	18, p. 25

Table 10 –Most Similar Sediment Matrix Composition for Contaminated/Background Samples.		
Contaminated Sample ID/Background Sample ID	Sample Description	HRS Doc Rec Reference
SD-49A (A4C01)	Wet, dark brown, SILT, some organics, trace clay, trace fine to coarse sand.	18, p. 48
SD-51A (A4C22)	Saturated dark brown-to-black, ORGANICS and SILT, little clay, trace fine to coarse sand	18, p. 52
SD-47A (A4C09)	Moist, dark brown, SILT, some clay, some fine to medium sand, trace coarse sand, trace fine gravel, trace organics.	18, p. 44
SD-51C (A4C24)	Saturated, dark brown, SILT, some clay, trace organics, trace fine to coarse sand, trace fine to medium gravel.	18, p. 54
SD-46A (A4C10)	Moist, brown, fine to coarse SAND, some fine to medium gravel, trace silt, trace debris (plastic sheeting), trace organics, trace clay.	18, p. 43
SD-52C (A4C27)	Saturated, brown, fine-to-medium SAND and fine-to-medium GRAVEL, little coarse sand, little silt, trace clay, trace organics.	18, p. 57
SD-41A (A4C04)	Saturated, dark brown, fine to coarse SAND and SILT, little fine to medium gravel, trace clay, trace organics.	18, p. 37
SD-54C (A4C26)	Moist, brown to dark brown, fine to medium SAND and SILT, some clay, trace coarse sand, trace organics.	18, p. 63
SD-39A (A4C05)	Saturated, dark brown, SILT, little fine to medium gravel, little organic debris (pine needles, bark, and wood chips), trace clay, trace fine to coarse sand.	18, p. 35
SD-51C (A4C24)	Saturated, dark brown, SILT, some clay, trace organics, trace fine to coarse sand, trace fine to medium gravel.	18, p. 54
SD-36A (A4C06)	Saturated, dark brown, SILT, some organics, trace clay, trace fine to coarse sand.	18, p. 31
SD-53A (A4C29)	Wet, dark brown, SILT, little clay, little organics, trace fine to coarse sand.	18, p. 58
SD-32A (A4C07)	Saturated, dark brown, SILT, some organics, little fine to coarse sand, trace clay, trace fine gravel.	18, p. 27
SD-51A (A4C22)	Saturated dark brown-to-black, ORGANICS and SILT, little clay, trace fine to coarse sand	18, p. 52
SD-31A (A4C08)	Saturated, brown, fine to medium SAND, some silt, some fine to medium gravel, trace coarse sand, trace organics, trace clay.	18, p. 25
SD-54C (A4C26)	Moist, brown to dark brown, fine to medium SAND and SILT, some clay, trace coarse sand, trace organics.	18, p. 63

Note: Based on the comparison of the sample matrix material composition for the background and contaminated sediment samples, the background sample best suited for comparison was assigned and described in the shaded row beneath the appropriate contaminated sediment sample (non-shaded rows).